

**Appendix A:
Botanical Report
for
Big River M1 Road Culvert Repair Project**

An Appendix to a
Supplement to a Mitigated Negative Declaration for the
Big River Watershed Restoration, Proposition 40 – River Parkways Grant
Project

Prepared for
Mendocino Land Trust

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Botanical Report for Big River M1 Road Culvert Repair Project

Introduction

This report provides an account of botanical observations and an ensuing discussion for a proposed culvert repair project at the Big River unit of Mendocino Headlands State Park, Mendocino County, California. The botanical surveys conducted correspond to locations proposed for stream-crossing remedial work (e.g., culvert replacement), as well as along the primary access route to those locations. The details of the project itself are provided in a supplemental mitigated negative declaration, developed in compliance with the California Environmental Quality Act in July 2012. Further pertinent information is available in the original mitigated negative declaration (MND) prepared for the Big River unit by the California Department of Parks and Recreation (or California State Parks, CSP) in October 2006, and in the supplement. This report is intended for inclusion as an appendix to the supplement.

The original MND specified activities and impacts for a series of stream-crossing and salmonid habitat improvement-related projects in the Big River unit. The supplement to the MND applies to an additional series of culvert repairs or replacements not addressed in the original MND. All botanical observations and considerations for impacts addressed in the original MND are still applicable under the provisions of the supplemental MND. Only information pertaining to the newly proposed project sites specified in the supplemental MND is presented here.

The Mendocino Land Trust (MLT) has provided funding for the completion of the Supplement to the MND and for the botanical surveys.

Geographical Setting

The Big River unit of Mendocino Headlands State Park comprises an area of approximately 7300 acres, most of which lies within the lower watershed of Big River, which empties into the Pacific Ocean immediately south of the village of Mendocino (please refer to the original MND for further orientation and maps). The unit spans an area along north and south sides of the river, from California State Highway 1 east approximately 8 miles, including numerous tributary watersheds to Big River.

The focal area for the botanical surveys is along the “main haul road,” a gravel- and dirt-surface that formerly provided the primary access for logging trucks to the lower watershed. This road is a central artery in a complex matrix of adjoining logging roads and skid trails, many of which intersect its route from Highway 1 east, winding about 8 miles roughly parallel to the north bank of Big River. Consequent to a road-numbering system developed by CSP in coordination with the California Geological Survey (CGS), the main haul road is abbreviated “M1.”

Along M1, the original project area included several stream-crossing sites designated for habitat-related alterations to road-stream intersections, such as removal of culverts and replacement with bridges or topographically engineered, rock-armored fords. However, the original MND did not incorporate discussion of all such stream-crossings or potential

remedial actions. Subsequently, additional crossings have been assessed by CGS and recommended for remedial work. Among those crossings are those specified in the supplemental MND.

Along M1, CSP has marked culvert crossings with mile-markers (brown plastic stakes with labels), to indicate the linear road distance from the entry gate at the west (Highway 1) end of the haul road. Culvert and stream-crossing locations are referenced according to this mileage-marking system (see Chapter 2 of the supplemental MND).

The locations for stream-crossing remediation added to the original project area and discussed in the supplemental MND are as follows (mile-marks along M1): 4.05, 6.49, 6.73, 6.84, 7.31, 7.38, and 7.78. These sites, along with M1 from mile mark 6.0 to its terminus at road M14 (approximately mile-mark 8.0), constituted the areas for botanical surveys.

Methods

I conducted an initial site survey during an on-site meeting with Michael Miller of Mendocino Land Trust and Renée Pasquinelli, senior environmental scientist with California State Parks, Mendocino District, on March 21, compiling information on the general scope of the project and the vegetation in the proposed extended Big River project area. Having conducted the initial botanical surveys for the original mitigated negative declaration and assisted in the production of the document in 2005 and 2006, I am familiar with the Big River site and the scope of the original project. Prior to and during the March 21 meeting, I requested acquisition of project design documents from the engineering geologists with California Geological Survey (CGS) contracted by MLT, or a site meeting with the geologists, to review project details.

On April 27, 2012, I received a contract confirmation letter from the Mendocino Land Trust in response to my proposal to complete a botanical survey in the extended project area and to produce a supplement to the original MND.

I conducted botanical surveys, including preparations, according to California Native Plant Society guidelines (California Native Plant Society 2001). I compiled a scoping list of rare plants that could potentially grow within the project area (Appendix Supplement A-1) prior to conducting intensive botanical surveys in the project area (California Native Plant Society 2012). I had not received any detailed information on the project, including the specific mile markers at which culverts were to be replaced, by the time I scheduled a site visit for the intensive botanical surveys.

I visited the site on May 15 and May 16, conducting site-specific surveys at 15 culvert locations along the M1 Road at the Big River unit; the survey areas at culverts at 6.84 and 6.90 miles were contiguous. At each culvert location, I conducted observations of all vascular plants within 10 meters upslope and 10 meters downslope along the drainage channels, and along the road edges to at least 15 meters in each direction. Since I lacked specific design drawings, I estimated the areas of possible excavation or disturbance to the best of my experience and ability. The final ground area inspected for plants at each

culvert location covers an approximately elliptical land surface at least 30 meters long by 20 meters wide. I recorded the names of all plants observed at each of the sites, as listed in Appendix A-2: Culvert Sites Botanical.

On June 4, I received, from MLT, the 50% design documents produced by CGS (dated May 30, 2012) for the following 6 culvert locations (mile markers): 6.49, 6.73, 6.84, 7.31, 7.38, and 7.78, and the 30% design document (dated April 30, 2012) for culvert replacement at Nelson Gulch (mile marker 4.05). I used these documents to compile as much project information as possible for the completion of the Supplement to the MND, and to reconcile the results of my initial 2 project site visits.

As a result of the acquired project design information, I revised my survey area to include the M1 roadside from mile 6.0 to about mile 7.9 in its entirety. On July 5, I completed a second intensive survey of all listed culvert sites, as well as the M1 road from miles 6.0 to about mile 7.9 (at its junction with roads M11 and M14). For the M1 road, I surveyed the road surface and both roadsides to about 10 meters from road center.

For all plants not identified to critical taxonomic level – the species or sub-specific identity necessary to determine potential rarity – I collected samples and examined material later with a microscope and made determinations according to information in available references (Baldwin et al. 2012; Jepson Flora Project 2012).

Results

All plants observed during botanical surveys are shown in Appendix A-2, listed by culvert location along Road M1. The entire list constitutes the plants observed along M1 from 6.0 to about mile 8.0, minus any species observed only at mile marker 4.05.

I observed no rare, threatened, or endangered vascular plants, as shown in Appendix A-1, during any of the project area surveys in 2012. Brief explanations for negative findings are provided in the far-right column in that appendix. In general, suitable habitat is lacking in the project area for most of the listed rare plants. A few grow within the Big River unit, but are not present within this additional project area -- some are present in the original project area as described in the 2006 MND, but not along this section of the M1 road.

The vegetation within the project area is similar to that of most of the Big River unit: forest dominated by coast redwood (*Sequoia sempervirens*), Douglas-fir (*Pseudotsuga menziesii*), and tanoak (*Notholithocarpus densiflorus*). Along some portions of M1, the canopy includes elements of alder-willow riparian woodland, with red alder (*Alnus rubra*), willows (*Salix lasiolepis*, *S. sitchensis* most commonly), and wetland herbaceous plants present. The more common shrubs throughout the survey area include blue huckleberry (*Vaccinium ovatum*), blue blossom (*Ceanothus thyrsiflorus*), California bay (*Umbellularia californica* – generally as a small tree or shrub), poison-oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), and thimbleberry (*Rubus parviflorus*).

In addition to recording plant observations, I noted red-legged frogs in small pools at 2 locations adjacent to culverts. I don't recall that these culverts are among those included for replacement under this project.

Discussion

The results from the 2012 botanical surveys, regarding lack of rare plant populations, are consistent with my observations of the flora along the M1 road between 2002 and 2008. While suitable habitat appears to be present for a few rare plant taxa (e.g., *Mitellastrum caulescens*, *Campanula californica*, *Coptis laciniata*), I have not seen these or other rare plant taxa in the more interior portions of the M1 road. The road surface and immediate roadside are significantly disturbed – in some areas, the roadbed is partly to completely constructed on fill -- with substantial cover by non-native herbaceous plants, although the immediately adjacent forest supports very low cover of such early successional plants as are found along roads and skid trails (e.g., *Cortaderia jubata*, *Rubus armeniacus*, *Holcus lanatus*). The history of ecological disturbance along M1 and other Big River roads includes soil removal and grading, deposition of gravel and other fill materials, loss of historical forest or scrub vegetation canopy, and hydrological alterations. These and other factors along road corridors and in adjacent forests that have sustained one or more periods of intensive timber harvest have likely influenced current species composition.

The nature of the proposed culvert replacements appears unlikely to result in significant alterations to ambient vegetation conditions at any of the sites, other than loss of vegetation within the immediate culvert areas. In most cases, removal of woody plants will be minimal, and herbaceous cover will likely recover within a few years. Provided that best management practices (such as silt fencing, wattling, mulching, planting of non-invasive cover plants), as described in the original MND, are implemented during all project-related work and in post-project remediation, loss of native plant and animal habitat will likely be avoided.

Some removal of non-native plants may be necessary to retain native plant cover, and this general practice would benefit the general habitat quality along the M1 road even were the project not to proceed. Planting of native plants – seeds or cuttings – in some areas may augment the rate of recovery of the ecological quality of some of the proposed work sites.

While, as a botanist, I can't professionally attest to the relative merits of replacing culverts (versus doing nothing) for the purpose of improving conditions for fish passage, I presume that this is a goal for at least the culvert at the Nelson Gulch crossing. In addition, I cannot fully discuss the relative merits of replacing culverts to improve habitat for other wildlife, to reduce potential erosion or sedimentation of second- and third-order streams, or to maintain road passage for recreational, maintenance, or other human uses. Nevertheless, I recommend retention of the overall species composition and cover at each culvert replacement site as an essential element in overall project implementation and achievement of broader management goals.

References

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